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ABSTRACT

The United States Census Bureau's mission is to be the preeminent collector and provider of timely, relevant, and quality data about the nation's people and economy. The Census 2000 teaching guide aims to help teachers bring the census to life for students. The guide outlines skills that correlate with national standards; fulfills curriculum requirements; demonstrates the importance and the many benefits of the census; and shows how to navigate the U.S. Census Bureau Web site. A model census helps students learn how to evaluate population needs and services; compare census data across communities; and work with statistical models. The guide is divided into the following sections: Map Literacy (Geography/Math/History); Lesson 1 (K-4): This Is Our Island/Mapping Districts (Reading Map Keys/Comparing Mathematical Values); Lesson 2 (5-12): Our Changing Island (Analyzing Historical Maps); Community Involvement (Civics and Government/Math/Geography/Art/Language Arts); Lesson 3 (K-4): Where You Belong/Group Needs (Recognizing Relationships); Lesson 4 (5-8): Making Plans (Real-Life Problem Solving/Analyzing Data); Lesson 5 (9-12): Future Focus (Thinking Creatively); Managing Data (Math/Civics and Government/Geography); Lesson 6 (K-5): Getting There (Using Charts and Graphs/Computing Whole Numbers); Lesson 7 (6-12): What's Behind the Form? (Collecting, Organizing, and Analyzing Data); and Additional Resources. (BT)

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ED 444 911

grades K-12

Making Sense of

Census 2000 Guam

THIS TEACHING GUIDE

will help you to:

- bring the census to life for your students
- teach skills that correlate with local standards
- fulfill curriculum requirements
- demonstrate the importance and many benefits of the census

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Scope and Sequence

LESSON	OBJECTIVE	CURRICULUM CONNECTIONS	SKILLS	STANDARDS
STRAND 1: MAP LITERACY				
1. This Is Our Island/ Mapping Districts Grades K-4	Students will learn how to use a map key and will practice comparing mathematical values.	● Geography ● Math	● Reading Map Keys ● Comparing Mathematical Values	● Read and Interpret Maps ● Understand Place Value
2. Our Changing Island Grades 5-12	Students will learn about the census, why it is important, and how it is beneficial to the residents of Guam.	● History ● Geography	● Analyzing Historical Maps	● Compare and Interpret Special Purpose Maps
STRAND 2: COMMUNITY INVOLVEMENT				
3. Where You Belong/ Group Needs Grades K-4	Students will identify the different groups to which they belong and explore group needs.	● Civics and Government ● Math	● Recognizing Relationships	● Participate in Community Activities ● Understand Relationships Between Numbers and Quantities
4. Making Plans Grades 5-8	Students will use real-life problem-solving skills to choose a site for a new school.	● Civics and Government ● Geography	● Real-Life Problem Solving ● Analyzing Data	● Identify Different Points of View that Influence the Development of Public Policy
5. Future Focus Grades 9-12	Students will encourage others to participate in the census and design an advertisement for Census 2000.	● Art ● Civics and Government ● Language Arts	● Thinking Creatively	● Create Art that Demonstrates the Communication of Ideas ● Analyze Effectiveness of Methods of Participation in the Political Process ● Write Persuasive Compositions
STRAND 3: MANAGING DATA				
6. Getting There Grades K-5	Students will interpret a pictograph and then create their own.	● Math ● Civics and Government	● Using Charts and Graphs ● Computing Whole Numbers	● Represent and Compare Categorical Data on Simple Graphs and Charts
7. What's Behind The Form? Grades 6-12	Students will take and analyze their own surveys.	● Math ● Civics and Government ● Geography	● Collecting, Organizing, and Analyzing Data	● Display, Analyze, Compare, and Interpret Different Data Sets

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How to Use **This Guide**

The lessons in this guide introduce students to Census 2000 with high-interest, grade-level appropriate activities designed to meet your curricular needs. Students will learn what a census is and why it's important to them, their families, and the community.

Lesson planning at a glance

Your "Scope and Sequence" (on the inside front cover) provides an at-a-glance summary of the lessons in this book. The "Scope and Sequence" identifies skills, objectives, local standards, and curriculum areas for each lesson. These lessons are designed to support your classroom goals, and are divided into three learning strands: *Map Literacy, Community Involvement*, and *Managing Data.*

Customized for your classroom

Each lesson in this guide consists of a teacher lesson plan, at least two reproducible activity pages, and one or more extension activities. Because the lessons have been designed to span a range of grades, most of the activities are stepped, allowing you to tailor your teaching to the individual needs of your students. The extension activities have been designed to enhance students' experience and understanding of the census beyond the classroom.

Before you begin

This teaching guide is based on a unifying concept: ***The census makes a difference for our community.*** Before you begin using the lessons, write this concept on the board. Explain that information gathered by the census helps Guam learn what Guam needs.

Using the Web site

The U.S. Census Bureau Web site (**www.census.gov**) is easy to use and can provide students and teachers with a variety of social, demographic, and economic information pertaining to the population of the United States. Students can work with the data found on screen or the data can be printed out for easier use.

Map Literacy

THIS IS OUR **ISLAND**

Grades K-2

Skills and Objectives:

- Students will learn what a map is and how it applies to them.
- Students will be introduced to the concept of a map key.
- Students will understand that the census gathers information about population.

Getting Started:

Discuss with students the fact that they live on the island of Guam. Explain that there are different places on the island — some where few people, some where more people, and some where many people live. Ask students if they live in a small or large village. Do they live close to many other people, or only a few people?

Chalkboard Definitions

map: a drawing of an area that shows its features.

map key: a place that tells what the symbols or colors on a map mean.

Using the Activity Worksheet:

1. Photocopy and distribute Activity Worksheet 1A on page 4.

2. Explain that this is a map that shows students the island on which they live. Point out the approximate location of the school.

3. Draw attention to the map key. Have students color the map key and discuss each symbol.

4. Ask students to create a symbol for their homes in the map key, and help them choose a color for that symbol. Then help them place and color the symbol for their homes on their maps.

5. Direct students to color in the rest of the map and key, making sure the symbols on both map and key are colored in the same way.

Wrapping Up:

Explain to students that a census is a way to count how many people live in a place, and that Census 2000 will be counting all the people who live on our island.

MAPPING **DISTRICTS**

Grades 3-4

Skills and Objectives:

- Students will understand the use of a map key in reading a population map.
- Students will use place value and write numbers to hundred thousands.

Suggested Groupings:

Individuals, partners, small groups

Getting Started:

- Draw students' attention to the We Count! map. Demonstrate that the map gives the boundaries and names of each district and the population of each based on the 1990 census.
- Use the map key to explain how the colors make it easy to see how districts differ by population.

Chalkboard Definitions

population: the total number of people who live in a place.

place value: the value given to a digit based on its place within a number.

district: a geographic unit.

Using the Activity Worksheets:

1. Photocopy and distribute Activity Worksheet 1B on pages 5 and 6.

2. Help students color in the map key on the Activity Worksheet on page 5, using the colors shown on the We Count! map. Then, using the map key, guide them in coloring each district.

3. Help students match the shapes, colors, and population figures from page 5 with the correct district on the map, writing its name in the space provided.

4. Discuss place value as you guide students through the questions on page 6.

Wrapping Up:

- Explain that a census is a way of finding out how many people live in a certain place. Discuss how the 1990 census gave mapmakers information needed for the We Count! map, and that Census 2000 will help in making a new map.

Answers:

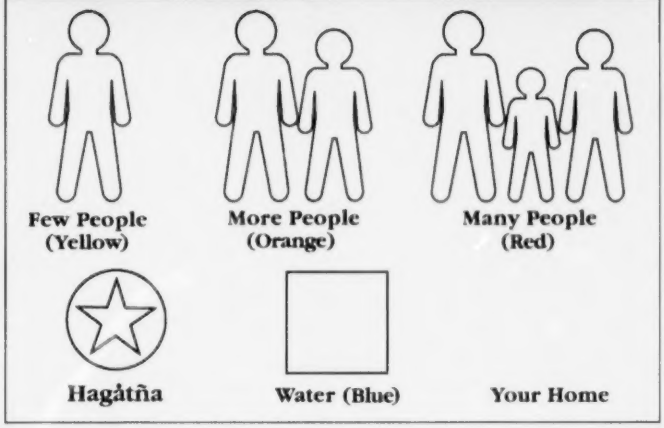
Page 5: 1. Dededo (red). 2. Yona (orange). 3. Umatac (yellow). 4. Chalan Pago-Ordot (gold). 5. Agana (yellow). **Page 6:** 1. Barrigada; 8,846. 2. Piti; 1,827. 3. Talofofo; 2,310. 4. Tamuning; 16,673. 5. Answers will vary.

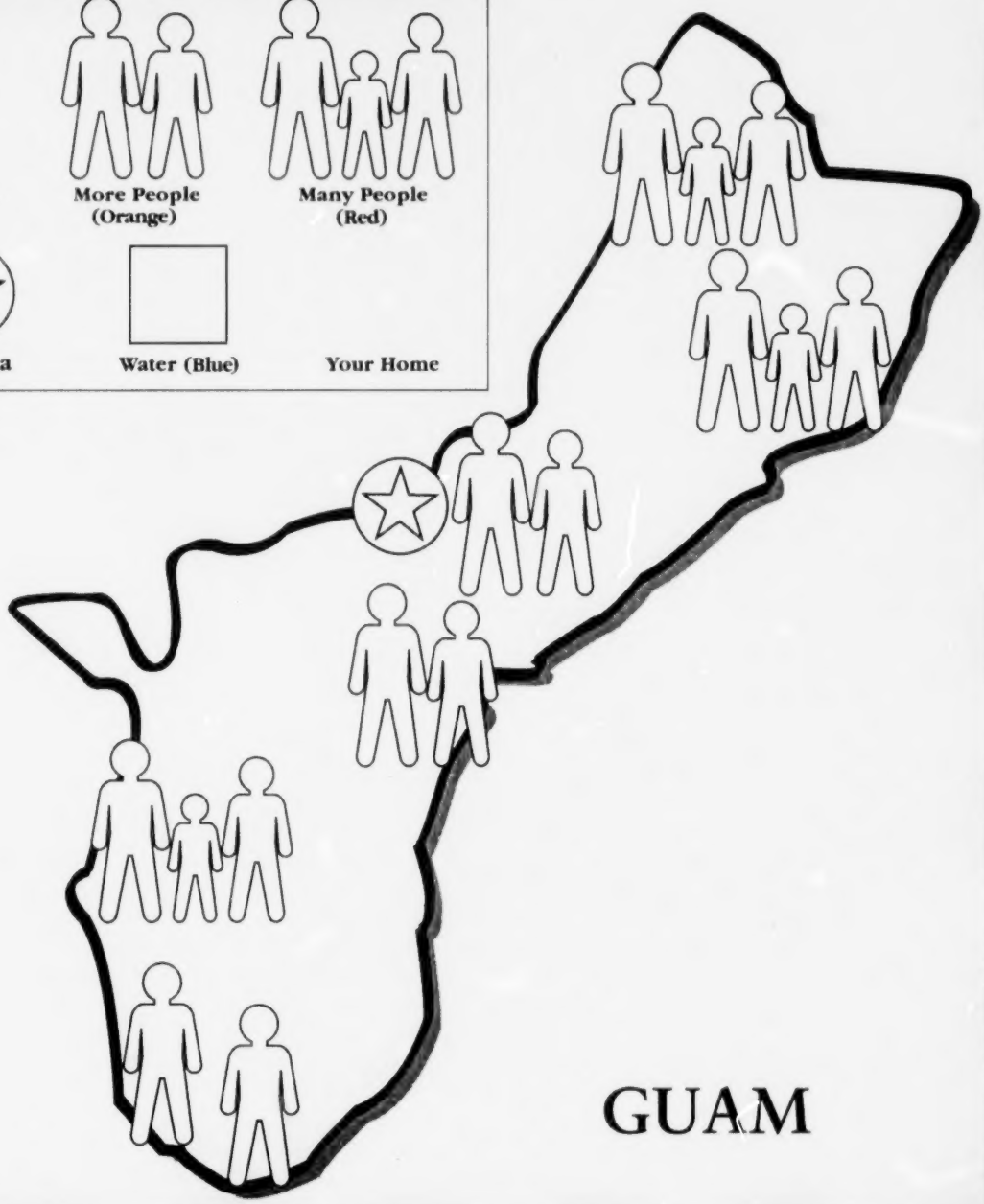
Name: _____

This Is Our **Island**

Color in the map key. Then color in the map, making sure the symbols on the map look just like the ones in the map key.

MAP KEY





Lesson 1 | Activity Worksheet 1B

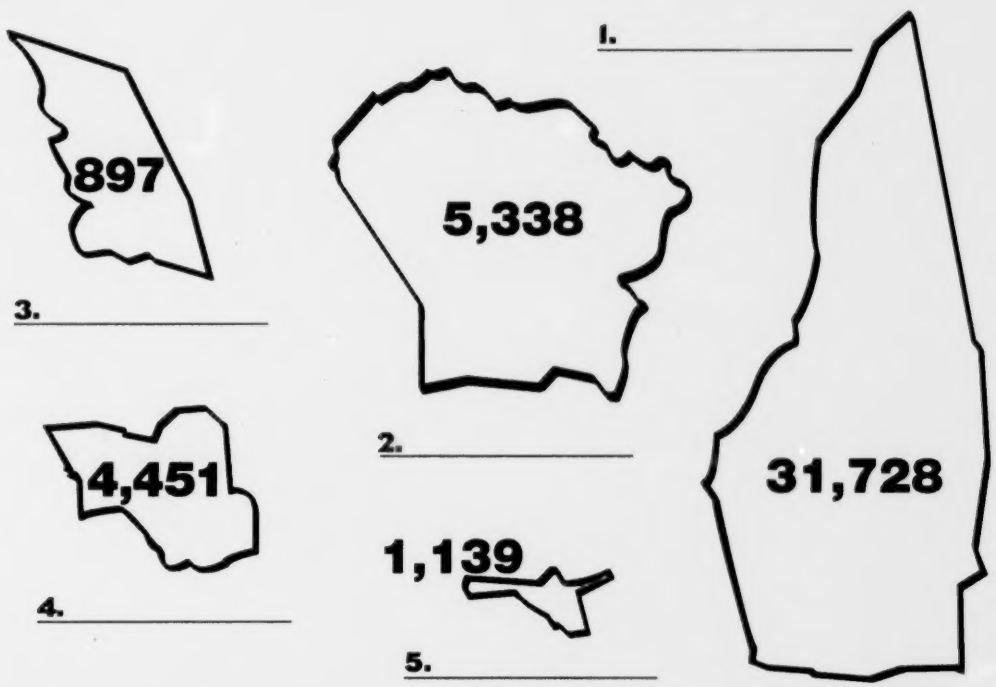
Name: _____

Mapping **Districts**

- Map keys help you read maps. Look at the We Count! map. What do the colors mean? The map key tells you.
- Look at the map key below. Read the color each box should be. Then color in the boxes.

DISTRICT POPULATION MAP KEY			
RED	Over 10,000	GOLD	2,000–4,999
ORANGE	5,000–9,999	YELLOW	Less than 2,000

- Color each of the districts below to match the map key. Then you can look at the We Count! map to find the name of each district and write it on the line next to it.



5

Name: _____

Mapping **Districts**

People, Places, and Numbers

Below are some populations from different districts. Write each number in standard form. (Hint: use what you know about place value.) Then use the We Count! map to find out which district has that same population. Circle the right one. We've done the first one for you!

1. Eight thousand, eight hundred forty-six 8,846

Mangilao **(Barrigada)** **Mongmong-Toto-Maite**

2. One thousand, eight hundred twenty-seven _____

Santa Rita **Piti** **Hagåtña**

3. Two thousand, three hundred ten _____

Umatac **Asan** **Talofofo**

4. Sixteen thousand, six hundred seventy-three _____

Yigo **Tamuning** **Inarajan**

5. In which district do you live? _____

How many people live in your district? _____

How many thousand people? _____

How many hundred people? _____

Map Literacy

Teacher PLAN 2 Lesson

OUR CHANGING **ISLAND**

A History of the Census in Guam

Grades 5-12

Skills and Objectives:

- **Students will learn about the census, why it is important, and how it is beneficial to the residents of Guam.**

Suggested Groupings:

Small groups, individuals

Getting Started:

Ask students to guess the answers to the following questions. Write some of their answers on the board, then give them the correct answers.
1. What is the population of Guam? (133,152, based on 1990 census) **2. Are there more males or females in Guam?** (males — 70,945; females — 62,207, based on 1990 census) **3. What is the median age of the population in Guam?** (25, based on 1990 census)
4. What was the population of Guam in 1901, three years after it became part of the U.S.? (9,676)
Tell students that we can know the answers to these questions through data collected by the census. The U.S. Census Bureau conducts a complete count of all the people living in Guam every 10 years. The information collected by the census includes the population of our island, as well as people's ages, education, occupations, etc.

- Explain to students that the first census was taken in 1710 when the island was still a possession of Spain. The population count at that time was 3,614. From 1710 through 1897, the government of Spain conducted 20 additional censuses. Spain ceded Guam to the United States in 1898 as a result of the Spanish-American War. In 1901 and 1910 the naval governor took the census in Guam, and since 1920 Guam has been included in every decennial census.

Using the Activity Worksheets:

- Photocopy and distribute the Activity Worksheet (page 10) and maps (pages 9 and 28), along with "Census at a Glance" (page 8).

Chalkboard Definitions

census: a count of a population in a given area.

confidential: private or secret.

decennial: occurring every 10 years.

data: factual information.

district: a geographic unit of measurement used by the Census Bureau.

- Review "Census at a Glance" (page 8) and discuss with students why the census is so important.
- Explain that they will be working in groups of four or fewer to solve the word puzzle on page 10.

Wrapping Up:

- Review the students' answers to the questions on page 10 and discuss them. Use these answers to initiate a discussion about population trends in Guam and how they influence the island's future.

Extension Activity:

Ask students to write their own questions based on the maps (pages 9 and 28) and/or the population table (page 10). Then have them exchange questions with their classmates and research the answers.
Grades 9-12: Have students review the history of their district. Ask: **When was their district established? Are its boundaries the same today as when it was established? What factors have affected the population growth of their district?** To answer these questions, students will need to obtain census information for Guam and their district. Have them start with a visit to their local or school library.

Answers:

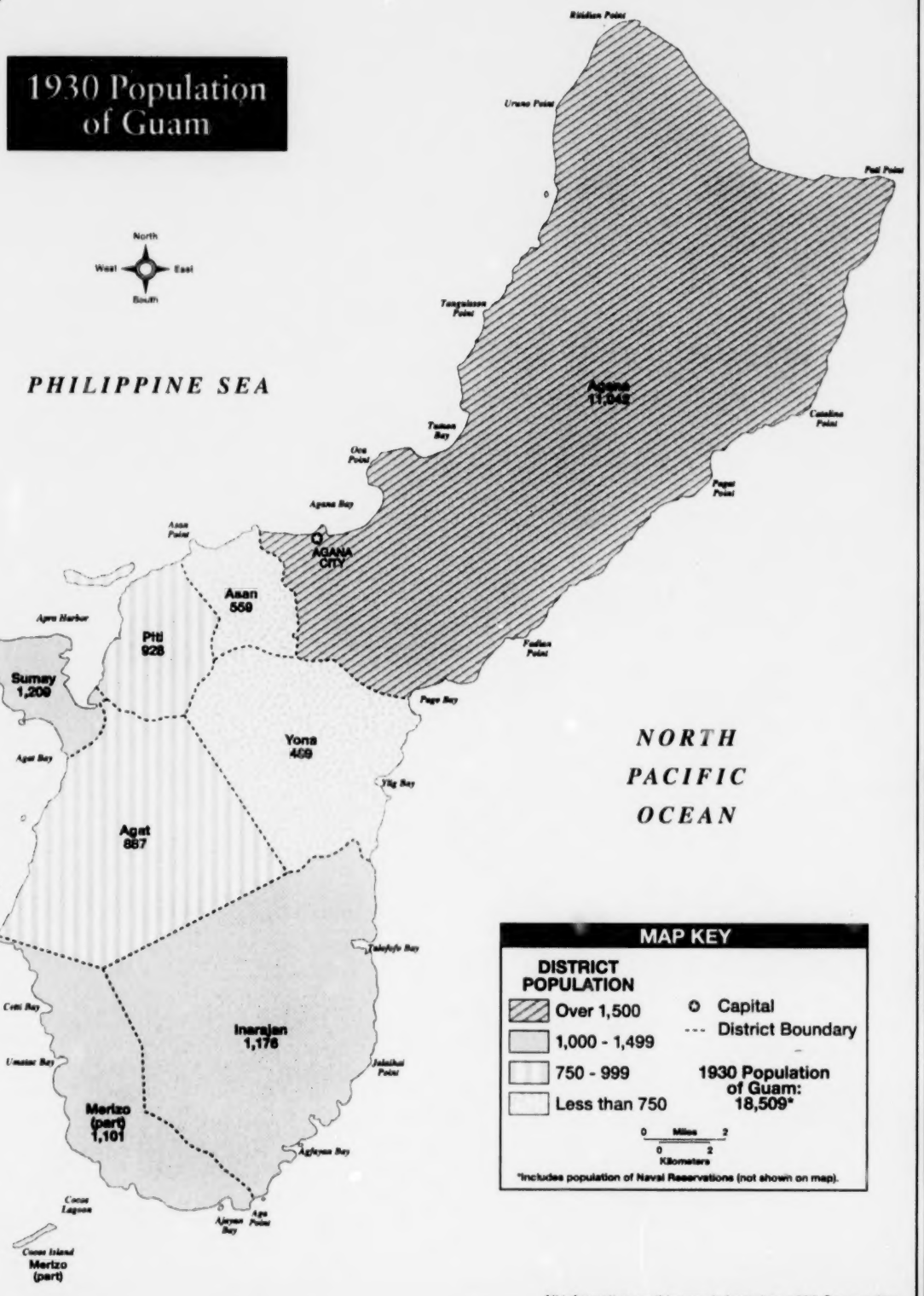
Page 10: 1. Umatac **2.** Mongmong-Toto-Maite **3.** Asan **4.** Cocos Island **5.** Sumay **6.** Sinajana **7.** Census **8.** The substantial U.S. military presence on the island during World War II led to a significant increase in the population of Guam. **9.** A surge in the local economy during the 1980s, fueled in large part by the development of a robust tourist industry, led to an increase in immigration, mostly from Asia.

Name: _____

Census at a **Glance**

- The U.S. Census is mandated by Article 1, Section 2 of the U.S. Constitution, which requires an enumeration of the population of the United States every 10 years.
- Title 13 of the United States Code, which sets out the basic laws under which we conduct a census, specifies that Guam shall be included in the decennial census.
- On March 27, 2000, the U.S. Postal Service will deliver questionnaires called Advance Census Reports (ACRs) to every household in Guam. ACRs ask for information about every person living in every household. A few days before the ACR arrives, each household will receive an advance letter alerting them to its delivery. Each household will be asked to complete the questionnaire and hold it until a census worker picks it up on or soon after March 31, 2000. If the ACR is not complete when the census worker arrives, then he or she will help complete it by conducting a personal interview.
- All individual information collected for the census is confidential. Census workers can be fined and/or jailed for releasing this information, and the Census Bureau itself is forbidden by law from sharing such information with other government agencies.
- The first census of the United States was taken in 1790. The first U.S. decennial census in Guam was taken in 1920. Guam became a part of the United States in 1898 as a result of the Spanish-American War. Between 1898 and 1920 two censuses were conducted by the naval governor.
- In addition to taking a complete count of the population, the U.S. Census Bureau also collects information about housing, age, marital status, education, and economic indicators.
- The census is important because the information obtained from the form helps federal and local governments determine where new roads, parks, schools, hospitals, and other services are needed. A new school and library, for example, could be built in your neighborhood based on data indicating a large increase in the number of school-age children living there.
- The U.S. Census Bureau plans long in advance for every census. While conducting a census, the Census Bureau is already planning for the next census, even though it is 10 years away.
- Census day is April 1, 2000: All people living in the U.S. and its territories on this day are included in the official count.

1930 Population of Guam



All information on this map is based on 1930 Census data.

9

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Lesson 2 | Activity Worksheet

Name: _____

A History of the Census in **Guam**

To answer the following questions and solve the word puzzle, you'll need to compare the 1930 and 1990 population maps of Guam.

1. The district with the smallest population in 1990 was: _ _ _ _ _(_)

2. You won't find this district on the 1930 map of Guam:
_ _ _ _ _ _ _ _ _ - _ _ _ _ _ - _ _ _ _(_)

3. This municipality's population has increased almost fourfold since 1930: _ _ _(_)

4. Which island is part of Merizo? _ _ _ _(_) _ _ _ _ _ _ _

5. Its own municipality in 1930, this is now part of Santa Rita: _(_)_ _ _

6. This landlocked district was a barrio of Agana in 1930: (_)_ _ _ _ _ _ _

7. What do the circled letters spell? _ _ _ _ _ _

POPULATION HISTORY OF GUAM, 1710–1990

1710	3,614	**1871**	6,270	**1930**	18,509
1793	3,584	**1886**	8,144	**1940**	22,290
1800	4,060	**1891**	8,369	**1950**	59,498
1816	5,389	**1897**	8,698	**1960**	67,044
1825	5,901	**1901**	9,676	**1970**	84,996
1830	6,490	**1910**	11,806	**1980**	105,979
1849	7,940	**1920**	13,275	**1990**	133,152

NOTE: The Spanish government took the censuses in Guam prior to 1901. The naval governor took the censuses in 1901 and 1910. Guam has been part of the U.S. decennial census since 1920.

The table above shows the history of population growth for Guam since 1710, which reflects important changes and events that have taken place on our island. Using your knowledge of the history of Guam, try to answer the following questions. Write your answers on a separate sheet of paper.

8. Between 1940 and 1950 the population of Guam more than doubled. What do you think was responsible for this unprecedented growth?

9. What factors partially account for Guam's substantial increase in population between 1980 and 1990?

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WHERE YOU BELONG/GROUP NEEDS

Teacher Plan 3 Lesson

Grades K-4

Skills and Objectives:

- **Students will learn about the concept of groups.**
- **Students will use counting techniques to take a census of their family and class.**
- **Students will discuss the needs of individuals, families, and the community.**

Chalkboard Definitions

household: a family or group of people that live together in one place.

group: a number of people who share something in common such as a school, community, or country.

community: a group of people who live in the same area or have something in common.

need: something that a person must have.

census: an official count of the population in a given area.

housing unit: living quarters such as a house or an apartment.

WHERE YOU BELONG

Grades K-1

Suggested Groupings:
Whole class, pairs, individuals

Getting Started:
Discuss the definition of a group with your students. Explain that a very important group is the family and that families tend to live together in one housing unit. The U.S. Census Bureau gathers information about housing units and people. This gathering of information is called a census. A census is taken every 10 years (always a year that ends in a zero) because the number of people and the number of housing units change. The new numbers are used for important community decisions, such as where to build new schools, stores, and playgrounds.

Using the Activity Worksheets:

- Photocopy and distribute Worksheet 3A (page 12).
- Explain how a census counts people and the housing units people live in.
- Guide students through the activity: Have them draw their class and household, then count the total number of people.

Wrapping Up:
Have students show their pictures to the rest of the class. Ask students: **How do their drawings differ? What are the different places where families might live?** Draw examples on the board. Explain how there may be more than one housing unit in a structure, such as an apartment building.

GROUP NEEDS

Grades 2-4

Suggested Groupings:
Whole class, individuals

Getting Started:
Ask students to define the word "needs." Explain that individuals need certain things to live. Have students give examples of needs such as food, water, and shelter and discuss how one person's individual needs might be different from what a group needs. Next, discuss with students what some of the class needs are, then extend the topic of discussion to the needs a family might have, and then to the needs a community might have. Challenge students to think about why certain things might be needed by a family and a community, and not by an individual.

Using the Activity Worksheets:

- Photocopy and distribute Activity Worksheet 3B (page 13).
- During or after your classroom discussion of needs, help students fill in their lists. Remind them to give reasons why these things are needed.

Wrapping Up:
Review with students their lists of class, family, and community needs. Ask students: **Are there any family and community needs on their lists that are different from individual needs?** Indicate their answers in a separate list on the board. **Are there any needs that might be more important than others? Why? Why do we take a census?**

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Name: _____

Where You Belong

We all belong to many groups. You belong to the groups below. Draw a picture of each group including everyone who is a part of the group. Then count how many people are in each group. This is like taking a census.

My Class

How many classmates do you have? _____

My Household
(the people I live with)

How many people live in your household? _____

Name: _____

Group Needs

Groups have different needs. Write down some things your class needs and why they are needed. Then do the same for your family and community.

1. My class needs:

_____

_____

_____

_____

2. My family needs:

_____

_____

_____

_____

3. My community needs:

_____

_____

_____

_____

MAKING PLANS

Grades 5-8

Skills and Objectives:

- **Students will use real-life problem-solving skills to choose a site for a new school.**

Suggested Groupings:
Small groups

Getting Started:

1. Ask students how they think census information is used. Explain that the federal government, the government of Guam including the municipal mayors, and businesses use census information on age, gender, language, housing, employment, income, and transportation to tailor services to a community's needs. This information is an integral part of Guam's planning decisions.

- Tell students they will do a site-planning exercise by using census-style data and other factors to pick a new school site. Ask: **What factors would you consider in selecting a site for a new school?**

2. You may wish to do the following as a warm-up activity:

- Write these categories on the chalkboard:
  1. Children ages 6-12
  2. Adults ages 65+
  3. Households without cars

- Ask students to name the category or categories that would most affect plans for the following:
  A. A new bus route (2, 3)
  B. A new middle school (1)
  C. A new community center (1, 2, 3)

How might people of varying ages feel about the proposed plans? For example: How would adults 65 and older feel about a new school being built near them?

3. Discuss with students how information about characteristics other than age (such as employment status) can help local governments serve their constituents. Offer an example, such as using census information on employment for developing a job training program.

Chalkboard Definitions

census tracts: small, relatively permanent areas within districts that average 2,500 residents per tract.

statistics: a collection of numerical data.

constituent: a person represented by an elected official.

Using the Activity Worksheets:

- Photocopy and distribute the Lesson 4 Activity Worksheets (pages 15 and 16) and introduce the lesson. Divide the class into small groups.

- Invite students to come up with their own examples of how census information might be used.

Wrapping Up:

- Have groups compare the sites they chose for a new school. Most groups probably chose Site B based on what is nearby (convenient transportation, residential housing, a large school-age population) and what is not nearby (industrial areas, a highway, other schools).

- You might wish to stage a village meeting to discuss students' site selections. At this meeting, add a cost consideration to the selection process. Propose to students that it will cost twice as much to build a school on Site B as it will to build on Site A or C. Building a school on Site B would mean raising taxes. Ask students to rethink their site selection with this in mind. **Would their decision remain the same? Why or why not?**

Extension Activity:

Have groups brainstorm about other planning decisions that could be made from the data in this lesson, for example, building a new playground or hospital.

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Name: _____

Making Plans

One way that census data are gathered and organized is by census tracts. Census tracts are small areas within districts that generally have between 1,500 and 8,000 residents, averaging 2,500 per tract. Local governments can use tract statistics to make decisions, such as which areas could use a new bus route, or which neighborhoods need more playgrounds.

What if you were a local government official? How would you use census-style data to make community planning decisions? Give it a try. A local school district has to decide where to build a middle school. The planning chart below helps you analyze each site. First, read the questions posed in the chart and enter your answers in the first column. Use the School Planning Map and the Census Table on page 16 to fill in the rest of the chart below. For each factor on the chart, rank the sites from 1 (best) to 3 (worst). Explain your reasoning for the ranks you choose. Then add up the rankings for each site to see which one comes out with the lowest total. That's your site!

Planning Chart

FACTORS TO CONSIDER	ANSWER/EXPLANATION	SITE A	SITE B	SITE C
School-Age Populations What are the pros and cons of locating schools near census tracts with large school-age populations?				
Existing Schools How close together or far apart should schools be in areas with lots of children?				
Industrial Areas Factories can cause noise and air pollution. How might this affect a school?				
Transportation How will children get to school? Are there roads leading to the site, or will the community have to build new ones? Is it dangerous to put a school near a highway?				
Totals		____	____	____

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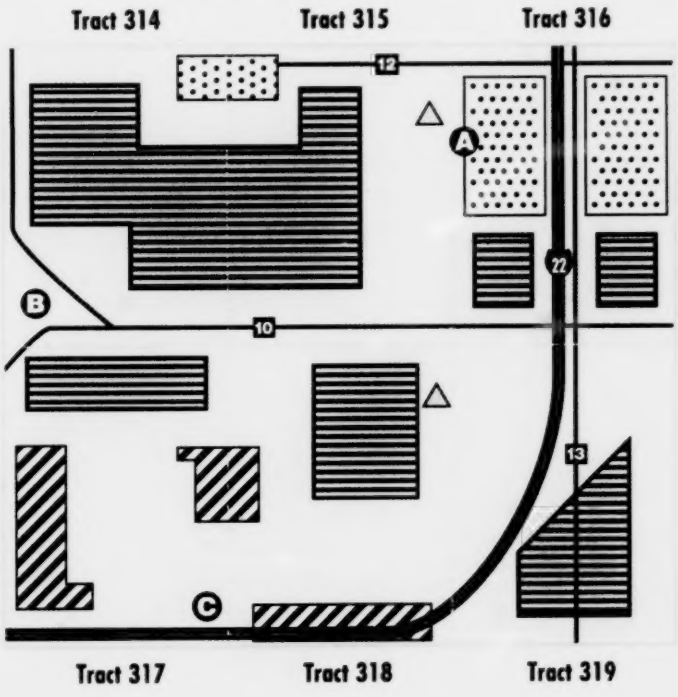
Name: _____

Making Plans (continued)

School Planning Map



Census Table

TRACT	CHILDREN AGES 6-12
314	973
315	1,470
316	263
317	697
318	469
319	342

MAP KEY

- △ Existing Middle School/Junior HS
- A B C Possible School Sites
- Industrial
- Shopping Area
- Residential
- 22 Highway
- 10 Local Road

- Which site did you choose? Explain why you picked this site.

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Teacher Lesson Plan 5

FUTURE FOCUS

Grades 9-12

Skills and Objectives:

- **Students will recognize the importance of the census and the need to encourage others to participate in the census.**
- **Students will identify the potential concerns of different segments of the population.**
- **Students will design an advertisement for Census 2000.**

Suggested Groupings:
Small groups

Getting Started:

- Discuss with students the importance of getting involved in their community and helping to increase census awareness. As a way of doing this, students will develop census ads. The goal is to choose a specific segment of the population as their target audience and encourage them to participate in the census, thereby helping the Census Bureau achieve an accurate count of the population.

Chalkboard Definitions

decennial: occurring every 10 years.

target audience: a specific group of people at which an advertisement or other presentation is aimed.

- Explain that conducting a decennial census is a tremendous undertaking. For Guam, the U.S. Postal Service will deliver Advance Census Reports (ACRs) to all households. Each household is asked to complete the form and hold it until a census worker picks it up. If the household has not completed it, then the census worker conducts a personal interview to complete the census questionnaire.

- Brainstorm about the importance of responding to the census and the ways in which census data affect our future. *(Examples include: allocating money for education and transportation.)*

Using the Activity Worksheets:

- Photocopy and distribute the Activity Worksheets on pages 18 and 19.

- Divide students into small groups. Have groups read the text and do the first activity on page 18.

- After groups complete the first activity, have volunteers explain how results of the census might affect the people represented by the various household categories.

- Before students begin designing their ads, encourage them to think of examples of other public service campaigns. You might discuss ad campaigns designed to encourage people to register to vote, or to discourage people from drinking and driving.

- You may wish to offer students the opportunity to select the type of ad they want to work on. They might want to do a print ad, a radio ad, or a television ad. A print ad should include visual elements. A radio ad should be written in a formal script. A TV ad should contain a script as well as a set of sketches depicting a series of shots.

- Have students design their ads.

Wrapping Up:

- Have each group present their ads. For each ad, a group spokesperson should explain the segment of the population they targeted, and the reasoning behind the design of their ad.

Answers:
Page 18 (Possible answers):
1. B, D, G 2. B, G 3. C, E, F
4. A 5. F 6. B, C, G

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Future Focus

Census data are used to make a wide variety of federal and local decisions that affect all residents of the U.S. and Guam. The U.S. Census Bureau needs to spread the word about the importance of participating in Census 2000.

The box below shows some examples of how Census 2000 data can affect the future. As with many other things, people's concerns about the future vary according to who they are. Families with school-age children might have concerns very different from those of the elderly.

Decide which effects of census data (in the box to the right) might most concern the household categories listed below. Then write those letters in the blanks. (Letters may be used more than once.)

Household Categories

1. Households with children under age 5 _____
2. Households with school-age children _____
3. Households with people age 65 and over _____
4. Households with cars _____
5. Households without cars _____
6. All households _____

WAYS THE CENSUS CAN AFFECT THE FUTURE

The Census can help determine...

A. where new roads will be built.
B. where new schools and libraries are needed.
C. the location of new hospitals.
D. the location of new day care centers.
E. where new nursing homes are needed.
F. changes in public transportation service.
G. the location of new parks and recreation centers.

Design an Ad

Now it's time for your group to create a Census 2000 advertisement aimed at a specific target audience (for example: students in grades 5-8 or 9-12; unmarried adults, ages 18 to 30). As you design, you might want to keep the following in mind:

- What will your ad say? What information about the census and the future will be of interest to your target audience? What would be a convincing reason for your targeted audience to participate in the census? How will your target audience affect ad placement? List three appropriate places where your ad might be displayed.

_____

_____

- Use the space on the next page to sketch an outline of your ad.

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Name: _____

Future Focus

GETTING THERE

Grades K-5

Skills and Objectives:

- **Students will learn what a pictograph is and how it is used.**
- **Students will use whole-number addition to interpret a pictograph.**
- **Students will collect data and present it in their own pictograph.**

Suggested Groupings:
Individuals, partners

Chalkboard Definition

pictograph: a graph that uses pictures to stand for a number of people or things.

Getting Started:

- Introduce the lesson by telling students that the Census Bureau counts the number of people in Guam, then tallies the information and displays it in charts and graphs. Show them the questions on page 29 to demonstrate the kind of information that is gathered.

- Explain that, in this lesson, students will practice reading a certain kind of graph, a pictograph. They will then gather information and create their own pictograph.

- Discuss with students the different ways they travel to visit family or friends. List these ways on the board and then take a survey by asking each student how he or she usually travels to visit friends (you will use the results in a later activity). Explain that a survey is when you ask the same question of many people and then add up their answers. Discuss that the census is also a type of survey and that it includes questions on transportation, such as how people get to work.

Using the Activity Worksheets:

- Photocopy and distribute Activity Worksheet 6A (page 21) to your class.

- Make sure the students understand the pictograph. Then have students work by themselves or with a partner to answer the questions. Discuss the results of this first activity. You may wish to write the results on the chalkboard.

- Photocopy and distribute Activity Worksheet 6B (page 22) to individual students or partners.

- Direct students to draw their pictograph in a way that is similar to the one shown on page 21. In the left column of the table on Activity Worksheet 6B, students will draw symbols to represent the three means of transportation that their classmates most commonly use to visit friends (based on the results of the classroom survey). Remind them that the fourth row should be labeled "other."

Wrapping Up:

How does a pictograph make it easy to compare numbers? *(Instead of totaling numbers, you can just look to see which row has the most pictures.)*

- Explain to students that the kinds of transportation that are practical and available can vary greatly depending on the village in which they live.

Extension Activities:

- Grades K-1: Use the data you have collected from the class survey to create a transportation chart on a bulletin board or poster board. Reinforce that charts make it easier to understand information about a number of different people or things.

- Grades 4-5: Invite students to gather other types of information through surveys of their friends or family and display them in pictographs. Suggestions include favorite animals, sports, or foods.

Answers:

Page 21
1. Two students in Ms. Guerrero's class.
2. Most students visit friends on foot.
3. 23.

Page 22
Graphs will vary.

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Name: _____

Getting There

When you visit friends, how do you usually get there? The pictograph below shows how the students in Ms. Guerrero's class usually travel to visit friends. In a pictograph, pictures stand for a certain number of things or people.

HOW MS. GUERRERO'S STUDENTS TRAVEL TO VISIT FRIENDS

On Foot	☺ ☺ ☺ ☺ ☺ ☾
By Car	☺ ☺ ☺ ☺
By Bus	☺ ☺

PICTOGRAPH KEY

☺ = 2 students in Ms. Guerrero's class

Use the pictograph to answer the following questions.

1. What does a ☺ stand for on the pictograph? _____

2. How do most of Ms. Guerrero's students travel to visit their friends?

_____

3. How many students are there in Ms. Guerrero's class? _____

Name: _____

Getting There (continued)

How do you and your classmates travel to see your friends? Your teacher will help you find out. Then use that information to create your own pictograph below.

Create your pictograph below. First, label the left column with pictures of the different kinds of transportation. The fourth row should be labeled "OTHER." Next, draw a picture to represent two students from your class. Put it in the key. Then fill in each row by drawing in the correct number of pictures.

HOW MY CLASSMATES TRAVEL TO VISIT FRIENDS	

PICTOGRAPH KEY

Managing Data

WHAT'S BEHIND THE FORM?

TAKE YOUR OWN CENSUS AND FIND OUT

Grades 6-12

Skills and Objectives:

Grades 6-9:

- **Students will understand the stages of designing, conducting, and processing a survey.**
- **Students will determine mean, median, and range for sets of data.**
- **Students will create a bar graph based on the results of their own survey.**

Grades 10-12:

- **Students will understand how a population estimate differs from a population projection.**

Suggested Groupings:
Individuals

Materials Needed:
Notebook paper

Getting Started:

1. Every 10 years the U.S. Census Bureau conducts a census, (a complete count) of the population of Guam. Explain to students that the census is an actual count as opposed to a survey, which is based on a sample of respondents. Along with the population count, other facts are collected, such as social, economic, and housing characteristics. Various statistical measures, including mean, median, and range, are used to communicate the information in a meaningful way to government agencies, businesses, universities, and the public. Information such as the age distribution of a population is crucial because it impacts programs and spending. For example, if the percentage of Guam's residents ages 65 and over increases between 1990 and 2000, this might affect the allocation of funds to programs for the elderly. For more information, refer to "Our Changing Island"(page 7). The next census will be conducted on April 1, 2000.

Chalkboard Definitions

addend: any number that is added to another to form a sum.

population estimate: a conclusion about the past or present population based on existing data.

mean: the average of a set of numbers.

median: the middle number, or the average of the two middle numbers, in a set of numbers.

percent: the ratio of a number to 100. Like a fraction, a percent signifies a part of a whole.

population projection: computation of future population based on assumptions about births, deaths, and migration.

range: the difference between the largest number and the smallest number in a set of numbers.

respondent: a person included in a survey or a census.

survey: a set of questions asked of a specific group of people to collect data.

2. Explain to students that the census is an enormous undertaking requiring about 12 years of planning and preparation. In order for the Census Bureau to collect the correct information, the right questions must be asked.

3. Explain to your students that they will be conducting their own "census-like" surveys. To do this, they will be collecting information from five households — their own, as well as those of relatives or friends — and comparing that information with data that were collected in Guam during the 1990 census.

Using the Activity Worksheets:
Photocopy and distribute Activity Worksheet 7A (page 26). Ask students to look over the 1990 census results to familiarize themselves with the outcomes they may expect after conducting their surveys.

- Next, photocopy and distribute "Think It Through Before You Start" (page 25) and discuss the questions with your students. Have students respond to the questions in the spaces provided, and as a class review their answers.

- On a sheet of paper, have students write down the following questions, making sure to leave room for five sets of answers.

1. How many people live in your household?

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WHAT'S BEHIND THE FORM?

Grades 6-12

2. What are their ages?

● Now students are ready to conduct their surveys. Discuss how they will gather and record data from the five households. Remind them to apply what they learned from "Think It Through Before You Start."

● After students have finished their surveys, have them transfer the age data they've collected onto a separate sheet of paper, arranging the ages from youngest to oldest.

● Review with your students the steps for calculating mean, median, percentage, and range on Activity Worksheet 7A (page 26). Then have students use the data they collected from their survey to answer the questions on that page.

Wrapping Up:

1. Compare students' answers with the figures shown for Guam on the Activity Worksheet. Responses will vary, but students should be able to explain their work.

● Revisit "Think It Through Before You Start" (page 25) with your students and ask them to reconsider each of the questions in light of their recent survey experience. **What obstacles did they encounter? Did they obtain the results they expected? If they were asked to conduct another survey, would they do anything differently?** Explain that the Census Bureau also faces many difficulties during the taking of a census such as determining which questions to ask, tracking down hard-to-reach respondents, ensuring the accuracy of an enormous amount of information, and deciding how to present the data collected to a wide range of audiences. The Bureau must also contend with people who won't fill out the form because they fear their answers won't be kept confidential. **From what you've learned, how would you suggest that the Census Bureau deal with these issues?**

● Ask students whether they think the results of the 2000 census will differ from those of 1990. If so, why?

2. Photocopy and distribute the Census 2000 questions on page 29. Explain to students that this form offers some examples of actual census questions.

Extension Activity on Page 27:

Grades 10-12: In this activity, students will learn about population estimates and projections, and compare population projections based on numerical (arithmetic) change and percent (geometric) change. Help students understand that information about the population in Guam is important for a variety of purposes, including planning in both the public sector (e.g., where to build schools) and the private sector (e.g., where to locate a store), and that population figures are used in determining federal and local fund allocations.

● Photocopy and distribute Activity Worksheet 7B (page 27) and discuss the problems with your class. Have students individually, or in pairs, calculate the answers to the questions.

Answers for Page 27:

1. 149,101.
2. 48,156 and 56.7 percent.
3. 181,308 and 208,649.
4. Because the percent increase is applied to a larger population in 1990 than in 1970.

Think It Through Before You Start

To conduct a successful survey you need to be well-organized and prepared to handle obstacles you'll find along your way. Answer the following questions before embarking on your research.

1. Who will you collect the information from?
The information you collect for each household may vary depending on which person you interview. For example, a young child may not know the exact ages of all the household members, whereas an adult in the household probably will.

2. When will you collect the information?
You may be more likely to reach a respondent during evening hours. During daytime hours, many respondents will be unavailable because they are at work or in school.

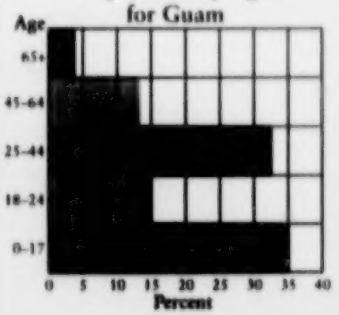
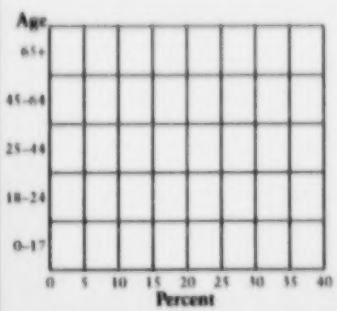
3. How will you collect the information?
Via telephone, face-to-face interview, or mail questionnaire? A phone survey is generally economical and efficient, but remember that some households don't have phone service. In-person interviews are the most time-consuming because they require visiting the household being surveyed. With a mail questionnaire, you'll need a printed form that respondents can fill out and return, but be aware that postage and printing costs can add up quickly.

4. How will you deal with a respondent who refuses to participate?
People who refuse to take part in a survey often do so because they fear the information they provide will be shared with others. Assuring confidentiality increases the likelihood that those you survey will answer your questions. The Census Bureau, for example, does not share the information it collects with any other government agencies, and its employees take a sworn oath to keep the information they collect confidential. In addition, all census data are aggregated — no characteristics of individuals are ever revealed.

5. How will you check the accuracy of the data you collect?
Keep an eye out for suspicious numbers such as a household with 50 members or an individual who is 200 years old. If you see these kinds of aberrations, the best thing to do is resurvey the household in question to correct any errors.

6. How will you present your data once your survey is complete?
Possibilities include creating charts, tables, graphs, or preparing a written or oral report.

Use the data collected from your own survey to solve the following problems:

Problem to Solve	How to Solve the Problem	1990 Census Results	Solution to the Problem
Find the **Mean Number** of Persons Per Household from Your Survey	The **mean** is the average of all the numbers in a set of numbers. Write down how many people live in each household you surveyed. Add the numbers, then divide by the number of addends.	1990 Mean Number of Persons Per Household in Guam **3.97**	Write Your Answer Here
Find the **Median Age** of the Respondents from Your Survey	The **median** is the middle number (or the average of the two middle numbers) in a set of numbers. Write down the age data you've collected from youngest to oldest. Find the median by crossing out numbers, one from each end, until only one number is left. If two numbers are left, find the mean of the two.	1990 Median Age of Residents of Guam **25.0**	Write Your Answer Here
Find the **Age Range** of the Respondents from Your Survey	The **range** is the difference between the largest number and the smallest number in a set of numbers. As above, arrange the age data you've collected in order from youngest to oldest. Subtract the youngest from the oldest to find the age range of your population.	1990 Age Range of Residents of Guam **94**	Write Your Answer Here
Find the **Percent Distribution** of Population by Age from Your Survey	Sort the age data you've collected according to the following age categories: 0–17, 18–24, 25–44, 45–64, and 65+. Divide the number of individuals that fall into each age category by the total number of respondents. Multiply by 100. This will tell you what percentage of respondents falls into a particular age category. Using the graph at right as a model, plot the percentages for the data you've collected in the last column.	1990 Percent Distribution of Population by Age for Guam 	

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Name: _____

Population Estimates/Projections

Grades 10-12

● Enumerations, Estimates, and Projections of Population

The U.S. Census Bureau produces three basic types of information about the U.S. population: enumerations, estimates, and projections. Enumerations are counts of the population, as in the 1990 census of population. Estimates are calculations of the population for a recent date and are usually based on the last census as well as on information about population change since the last census. Projections are calculations of the population for a future date and are usually based on the last census or estimate, and on assumptions about future population growth or decline.

● Population Estimates

The three components of population change between two dates are births, deaths, and net migration (immigration to Guam minus emigration from Guam).

For Guam, the population in 1990 was 133,152. For the 1990–1998 period, data on the components of population show the following:

births (B) = 34,393, deaths (D) = 4,981, net migration (NM) = -13,463

1. Calculate the 1998 population estimate for Guam using the following formula:

$$P_{1998} = P_{1990} + B - D + NM$$

● Population Projections

The three components of population change between two dates are births, deaths, and net migration. To make population projections for Guam, demographers make assumptions about future trends in the components of population change.

2. Table A shows the 1970 and 1990 census populations for Guam. Calculate numerical change (1990 population minus 1970 population) and percent change (numerical change as a percent of 1970 population, with percent change rounded to one decimal place).

Table A. Population Change of Guam: 1970 and 1990

1970 Population	1990 Population	Numerical change	Percent change
84,996	133,152		

3. Calculate population projections for Guam for the year 2010 assuming a continuation of trends for the 1970–1990 period: first based on numerical change, then based on percent change (as calculated above), with the results rounded to the nearest integer.

Table B. Population Projections for Guam for 2010

Based on numerical change	Based on percent change

4. Why is the population projection for the year 2010 larger when based on percent change than when based on numerical change for the 1970–1990 period?

_____

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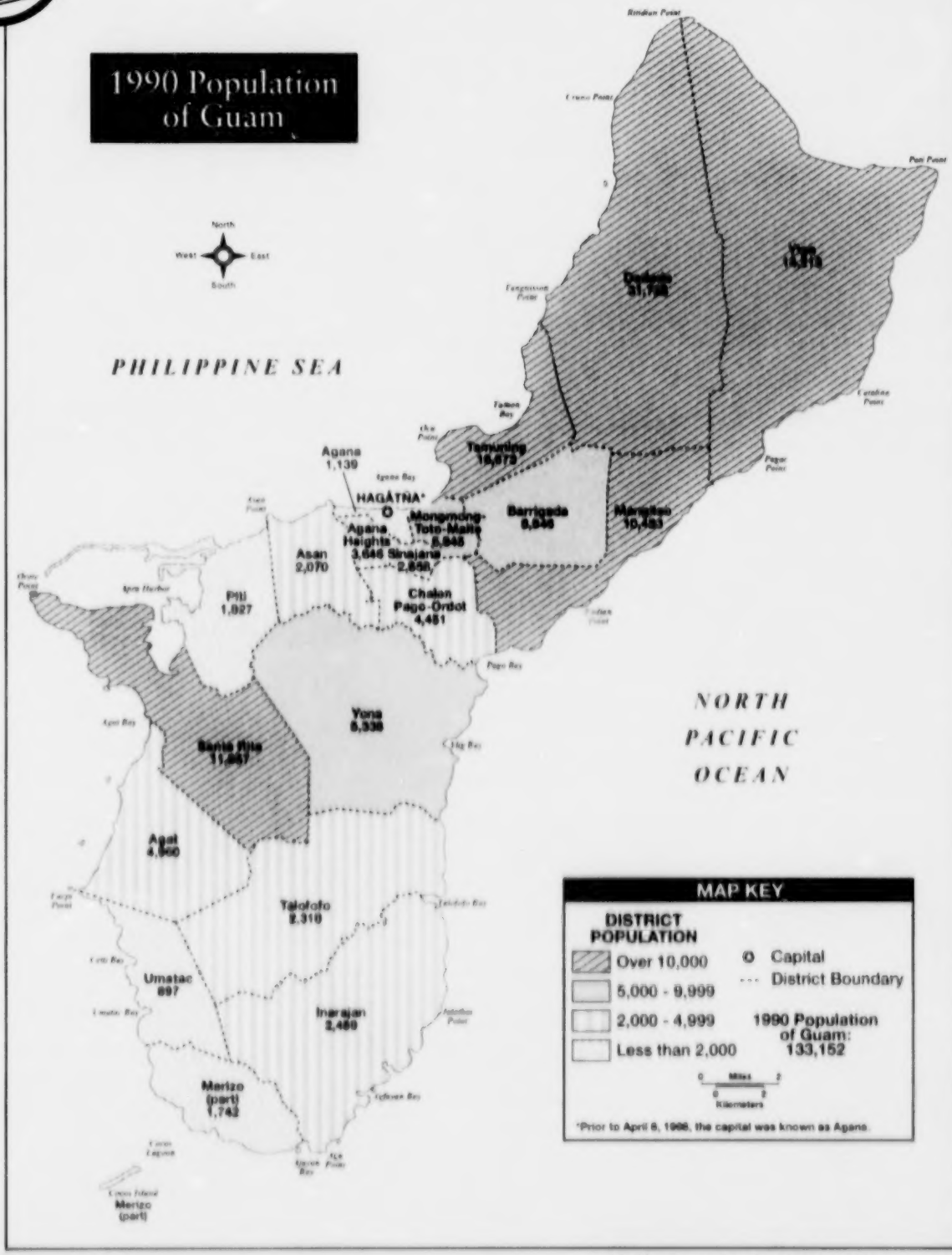
1990 Population of Guam



All information on this map is based on 1990 Census data

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Selected Census 2000 Questions

1. What is this person's sex?
Mark ☒ one box.

❑ Male
❑ Female

2. What is this person's age and what is this person's date of birth?

☐☐☐ Age on April 1, 2000
Print numbers in boxes.

☐☐ Month of birth
☐☐ Day of birth
☐☐☐☐ Year of birth

3. What is this person's ethnic origin or race?

☐☐☐☐☐☐☐☐☐☐☐☐
☐☐☐☐☐☐☐☐☐☐☐☐
☐☐☐☐☐☐☐☐☐☐☐☐

(For example: Chamorro, Samoan, White, Black, Carolinian, Filipino, Japanese, Korean, Palauan, Tongan, and so on.)

4. What is this person's marital status?
❑ Now married
❑ Widowed
❑ Divorced
❑ Separated
❑ Never married

Additional Resources

Web sites

U.S. Census Bureau (www.census.gov). The source for information on people, business, and geography. This site offers census news, maps, tools to build your own data tables, and more.

The Official Guam U.S.A. Web Site (www.gov.gu/index.html). This site provides news updates from the governor's office, a wide range of information on the people, geography, and culture of Guam, as well as links to numerous other Web sites of interest.

Map Man (www.scholastic.com/jsi/mapman/index.htm). This is an on-line geography contest, hosted by *Junior Scholastic* magazine, featuring a new game each week.

Microstate Network (www.doi.gov/oia/netlinks.htm). This site has "a world of information about the smallest of states" and provides links to sites with information on a broad range of subjects concerning Guam, including its business and economy, culture and language, and government and politics.

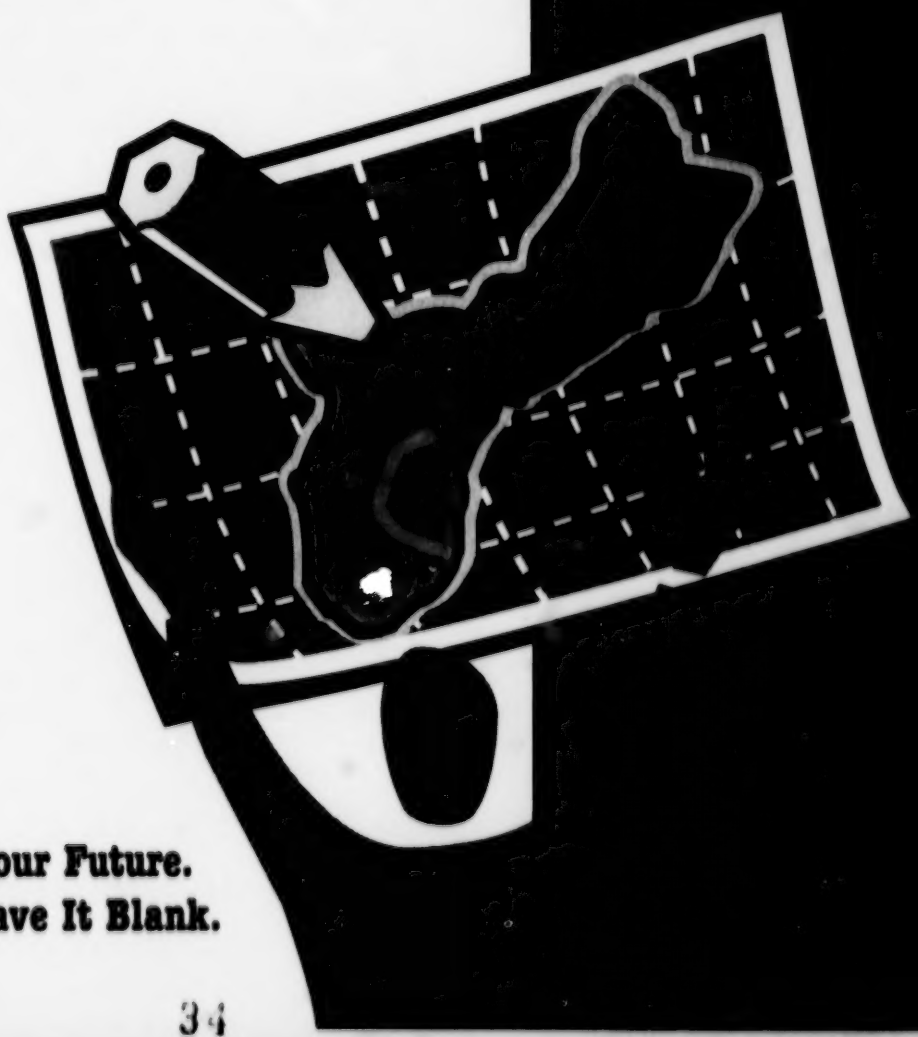
Books

K-4

Chamorro Word Book *by Marilyn Salas* (Bess Press, 1998). Basic Chamorro vocabulary is illustrated with detailed line drawings that explore both traditional and modern life.

5-12

Destiny's Landfall: A History of Guam *by Robert F. Rogers* (University of Hawaii Press, 1995). This comprehensive look at the history of Guam and its people also offers maps, illustrations, extensive footnotes, and a bibliography.



This is Your Future.
Don't Leave It Blank.

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